

# Norse Greenland

## – research into abandonment

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*The story about Norse Greenland is the story of virgin land being colonized, settled for half a millennium, and then abandoned. The enigma of the abandonment of the settlements has attracted the attention of researchers and the public for centuries and many explanations have been put forward. Today human agency, landscape changes, climate changes, resilience, sustainability and adaptation are key words and research has moved from local to more global perspectives. New results from research projects in recent years have diversified the discussion claiming that the Norse Greenlanders created a flexible and successful subsistence system that responded effectively to the major environmental challenges they faced. In a recent paper it has been argued (Dugmore et al 2012) that abandonment should be explained by a combination of external factors (climate changes; changes in European trade systems). In this paper the argument is explored further, focussing especially on Norse governance, Norse dietary economy and settlement patterns.*

### Introduction

The story about Norse Greenland is the story of virgin land being colonized, settled for half a millennium and then abandoned. According to written accounts Icelanders colonized South Greenland in the later part of the 980s, settled in the mid- and inner fjord regions of the present Kujalleq and Sermersooq municipalities and then disappeared in the second half of the fifteenth century. The enigma of the abandonment of the settlements has attracted the attention of researchers and the public for centuries and many explanations have been put forward. Whatever research objectives and approaches, the ultimate goal has almost always been to explain how, why and when the Norse settlers disappeared from Greenland. It has been so for the last 40 years – and it


was also so in the 250 years before that, and all theories expressed more or less reflect their time, supporting the saying that every generation rewrites history. The discussions have moved from simple mono-causal explanations to more multifaceted complexes of aspects that might have contributed to the fatal development, and today we believe we have come closer to reasonable explanations as to what happened in Norse Greenland in the late Middle Ages.

### **Research history**

The research history of Norse Greenland reflects in many ways the general development of medieval archaeology in Europe (Andrén 1998). In the early period archaeology was interpreted within the historical and chronological framework of written sources. The written accounts were the main sources for the history of the Norse Greenlanders; they offered the chronology, and despite their limited number and inadequate quality they had an overshadowing influence on the syntheses put forward (Arneborg 1989). The introduction of radiocarbon dating in the late 1970s was a significant watershed in the history of Norse Greenland; from this time the chronological handcuffs of the written sources were removed from archaeology, and archaeological interpretations found their way into the discussions.

Today Norse Greenlandic archaeology is highly interdisciplinary including both the natural sciences and humanistic social-science approaches (eg history, human bioarchaeology, zooarchaeology, archaeobotany, geoarchaeology, stable isotopic analysis, environmental modelling and artefact studies). Archaeology has moved from single site studies to studies of whole regions and tries to get broad perspectives on the interaction of the many cultural elements in the landscape – topics such as the organization of society, governance, economy and subsistence, religion and human well-being/suffering are interpreted with impulses from social anthropology and ‘Annales’-oriented research and with the overall attention to human-environment interaction (Arneborg 2014). Human agency, landscape changes, climate changes, resilience, sustainability and adaptation are key words today, and research has moved from local to more global perspectives (Dugmore et al 2012; Hegmond et al forthcoming).

### The Norse settlements in Greenland – a short historical outline

Early historical writing in Iceland and Norway tells of Icelanders who – under the leadership of Erik the Red – migrated to Greenland around 985 and settled in what they called the Eastern Settlement in nowadays Kujalleq municipality, and in the Western Settlement close to Nuuk in nowadays Sermersooq municipality. In the broader perspective the settlement of Greenland was the last step in the colonization of the North Atlantic land  which began with the settlement of the Faroe Islands and Iceland in the later part of the ninth century (Fig 14.1).

Greenlandic bishops were appointed in Norway from around 1120, but the first bishop mentioned as having actually travelled to Greenland was Bishop Helge, who arrived in Greenland 1212 (GHM III, 10f). In 1261 the Greenlanders



*The North Atlantic with Greenland and the Norse settlements. The Eastern Settlement is in the present Kujalleq Municipality; the Western Settlement is in Sermersooq Municipality. Google Maps.*

Fig 14.1

were subjected to the Norwegian king. The last bishop who resided in Greenland died in 1378, and in the same period the Norwegian priest Ívar Bárðarson reported the Western Settlement abandoned by the Norse (Jónsson 1930). Thirty years later, in 1408, an Icelandic couple was married in the Hvalsey fjord church in the Eastern Settlement and the attestation of their marriage is the last written testimony of life in the Norse settlements in Greenland (GHM III, 145ff). In 1721, after centuries without regular contact, the Danish-Norwegian priest Hans Egede landed on the outer coast of the Nuuk region (the Norse Western Settlement), settled there, and contacts between Scandinavia and Greenland were re-established.

### The enigma of abandonment

After having landed in the Western Settlement Hans Egede very soon realized that the Norse settlement had been abandoned by its inhabitants. With reference to Ívar Bárðarson's 'Greenland Description' and a few other written accounts indicating hostile encounters between the Norse and the Thule Inuit, Egede had no doubt that the Norse in the Western Settlement had been wiped out by the Inuit (Egede 1741, 6), and he laid the foundations for one of the most persistent theories explaining the Norse disappearance from Greenland (Fyllingsness 1990, 31ff; Arneborg 1993). Aside from such spectacular theories as pirates having kidnapped some Norse Greenlanders and wiped out the rest (Fyllingsness 1990, 121ff) or the Norse Greenlanders having emigrated to America (ibid, 136ff), most theories proposed after Egede's intended to *explain* how the Inuit managed to overcome the supposedly superior Scandinavians (Hansen 1924; Fyllingsness 1990, 152ff).

With the growing recognition of the damaging consequences of modern utilization of Earth's limited natural resources the Thule Inuit theory was overshadowed by ecological explanations, and from the 1980s the prevailing explanation of the depopulation of the Norse Greenland settlements was maladaptation and exhaustion of the very fragile natural resources. Climate changes added yet another facet to the discussion. In his famous book *Collapse – How Societies Choose to Fail or Succeed*, Jared Diamond (2005, 248ff) summarized the state of play and argued that the Norse Greenland society collapsed because, in the first place, they depleted the environmental resources on which they depended by cutting trees, stripping turf for house building, and overgrazing their pastures which resulted in heavy soil erosion. Secondly, they did not utilize additional

and available food resources such as fish, ringed seals and stranded whales. And, thirdly, they had established a rigid social system, which could not adapt to the changing world, including climate changes.

New results from research projects in recent years have in many ways diversified the discussion in that, instead, the Norse Greenlanders seem to have created a flexible and successful subsistence system that responded effectively to the major environmental challenges which they faced so that abandonment should be explained by a combination of factors that in the end came from outside (climate changes; changes in European trade systems) and were insuperable (Dugmore et al 2012). They may have adapted too well and too effectively to the conditions they first met, later restricting the flexibility of response to cope with the challenges to come (Renfrew 1984, 372). In the present paper the argument will be unfolded further, taking as the point of departure the Norse dietary economy and Norse church-building activities – both topics that have been in focus for research in recent decades.

### **Dietary economy**

When settling in South Greenland the immigrants transferred pastoralism with cattle, sheep and goats from the wide open-spaced and relatively mild (compared to Greenland) Iceland to the scattered and limited spaces of green land along the fjords and in the narrow valleys of the climatically more unpredictable Greenland. An added bonus was the rich fauna which the settlers encountered. In the fjords were seal and fish in large numbers easy to catch, and on land, especially in the Western Settlement, reindeer must have been an appreciated contribution to the diet. Furthermore, in spring and fall, migrating harp seals passed by the outer coasts of the settlements to and from the breeding grounds around Newfoundland in Canada.

The animal bone record shows that all farms kept cattle, sheep and goats, the number and distribution of the different animal species depending on the size of the farm. Larger farms held relatively more cattle than did the medium sized and small farms. Here sheep and goats dominated. Over time common to all farms is an increase in bones from marine mammals, primarily seals, compared with the domesticates (eg McGovern 1985; Enghoff 2003), and results from stable isotope studies ( $\delta^{13}\text{C}$  and  $\delta^{15}\text{N}$ ) (Arneborg et al 2012) also emphasize the increased dependence on marine resources. From the initial settlement around 980 to depopulation around 1450 the average amount of marine food in the diet

increased from less than 40% to more than 60%. For some individuals about 80% of their diet derived from the sea in the final settlement period.

Simultaneously in the Eastern Settlement seal hunting patterns changed from having concentrated on the stationary harbour seals in the early settlement period to focus on the outer coast and the migrating harp seals in the later period. The shift most probably was caused by the climate changes (Ogilvie et al 2009).

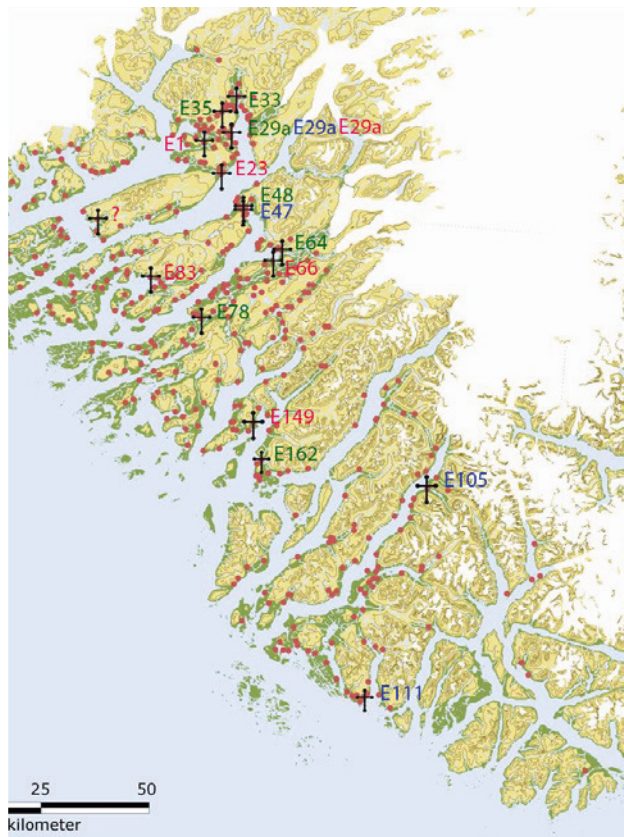
The stable isotope study also shows that, especially during the period from c 980 to 1300, the Norse Greenlanders had an isotopically varied diet indicating great differences in diet within society. After 1300 the differences equalized and all had a predominantly marine diet (Arneborg et al 2012, fig 7). The differences do not seem to link to sex or age (Nelson et al 2012), and either the location of the farm (inland or close to the fjord) or social differences within the Norse society may offer an explanation for the differences.

### Settlement patterns

The Eastern Settlement holds c 500 recorded sites or ruin groups with one or more individual ruins, and in most cases the sites represent a farm. The Western Settlement holds c 80-100 sites ~~or farms~~. Obviously not all farms were settled at the same time. At 'The Farm Beneath the Sand' in the Western Settlement which was excavated 1991-96, the fossil insect fauna indicates breaks in the occupation of the farm (Panagiotakopulu et al 2007, 303), and dating results from our large regional settlement project in Vatnahverfi in the Eastern Settlement (2007-11) indicate that the settlement was very dynamic. Seemingly the smaller farms on the outer coast and in the inland were established later and abandoned earlier than the farms in the coastal inner fjord regions (the Vatnahverfi project; Madsen 2014).

Also the church-building activity in the Eastern Settlement hints to a dynamic settlement. The building of churches took place within three chronological periods (Fig 14.2). The first churches were built contemporary with settlement, and they concentrate in the central parts of the Eastern settlement in the mid- and inner regions of Tunulliarfik and Igaliku fjords where the possibilities for the Norse pastoral economy were most favourable. The Romanesque churches with nave and a separate chancel form the second wave and – leaving out the church at the bishop's seat at Gardar – there are three Romanesque churches in the Eastern Settlement. In the central part, at Erik the Red's farm





*The churches in the Eastern Settlement. Period I, landnam-1200: E29a (Tjodhilde's church), E33, E35, E48, E64, E78, E162 (in green); Period II, c 1100-1250: E29a, E105 and E111 (in blue); Period III, after c 1250: E1, E23, E29a, E66, E149 (in red). Map: Jette Arneborg.*

Fig 14.2

Brattahlid, one of these succeeded the 'landnam' church, the so-called 'Tjodhilde's church' (Fig 14.3); the two others are at E105 and E111 respectively, in the southern part of the settlement.

We cannot rule out the possibility that the two last mentioned churches had had predecessors equal to the small 'landnam' churches in the central part of the Eastern Settlement. The point, however, is that while the second wave of church-building included the southern part of the Eastern Settlement where conditions were less favourable for the Norse pastoral economy, the third wave of building activity, from c 1250-1300 (Fig 14.4), reverted to the most fertile areas around Tunulliarfik and Igaliku fjords, where churches were rebuilt and new ones were established. The church at E149 in the south is an exception and the late building activity there may be explained by the hot springs at Uunartoq and the income that the church may have had from visitors to the hot baths here.



Fig 14.3 *Reconstruction of Tjodhilde's church, E29a, at Brattahlid, today Qassiarsuk. The church is supposed to have been built of timber, the outside being covered with protecting turf walls. Inside, the church measured c 2 x 3.5m; the cemetery was surrounded by a circular earth dike. The later Romanesque church was situated c 150m from Tjodhilde's church and closer to the coast. The reconstruction is built outside the ruin area. Photo: J. Arneborg 2000.*



Fig 14.4 *The Hvalsey fjord church in the Eastern settlement, E83, is a rectangular stone building from around 1300. Photo: J. Arneborg 2004.*





Gravestone from Herjolfsnes, E111. Most inscriptions from Norse Greenland are in runes, but Latin letters were also used, as on this stone. *On the top part of the stone (left) the letters IDV may be seen, while other letters are unreadable.* The main inscription (right) reads: HERHUILIR:HRO(AR) – KOLGRIMS:S(ON) (Here rests Hroar Kolgrimsson). Photo: Benny Staal 2014.

Fig 14.5

## Discussion

Climate deteriorated in the settlement period, and climate changes could be part of or the explanation for the increased dependence on marine resources – either because of easier access to seals or because it became a necessity to hunt the sea mammals due to decline in the pastoral economy (Dugmore et al 2012). The changes in both settlement pattern and in the dietary economy show flexibility and capacity to adapt to changing circumstances whatever the reasons were for these changes; the developments mentioned seem, however, to point in two opposite directions. Settlement in the ‘rural’ central region intensified in the later settlement period at the same time as the dietary economy became more dependent on outer coast resources. The elucidation of this apparent conflict may be hidden in the concepts of identity and governance. The Norse Greenlanders belonged to the Viking and Norse North Atlantic diaspora; material culture, such as the famous dresses from Herjolfsnes (Nørlund 1924; Arneborg 1996), continuous church building (Roussel 1941), and language and writing (Imer 2009/2012) (Fig 14.5), together demonstrate the importance

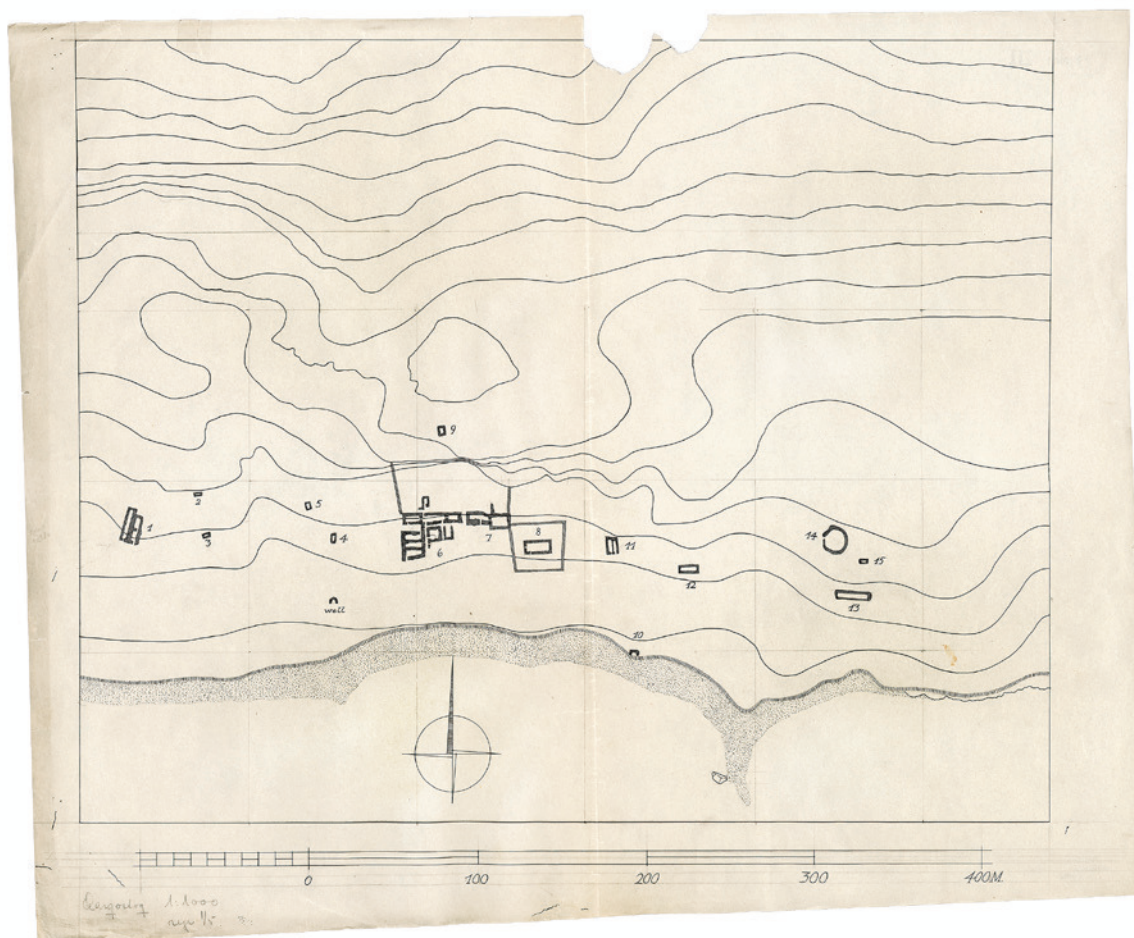


Fig 14.6 The Hvalsey fjord farm in the Eastern Settlement, E83, probably dates to c 1300 and is a typical elite farm reflecting all functions that constituted the authority of the farmer. Ruin no. 1: byre and barn with room for the prestigious cattle; Ruin no. 6: dwelling with well-built hall building; Ruin no. 8: the church; Ruin no. 10: store-house on the coast where trade goods were probably collected. Survey: Roussell 1935, National Museum of Denmark.

that the Norse Greenlanders gave to their Norse and North European identity right until the end of their settlement here (Høegsberg 2013). Contacts with the Thule Inuit (Arneborg 1993; 1997) may even have augmented the Norse need for expressing their identity.

In Iceland influence in society originated in the ownership of land. The elite farmers controlled the resources of society; they owned the best lands and the rights to all other natural resources (Hastrup 1985, 111, 189), and both written

accounts (Halldórsson 1978, 134) and settlement pattern (Fig 14.6) indicate that the same applied to Norse Greenland. Here the elite farmers also held authority over the Church (Arneborg 1991), and they probably controlled internal and external trade in that they owned the ships and other equipment for the trips to the hunting fields in the North where the most valued of all Greenlandic trade items, walrus tusks, were collected (GHM III, 243). Norse identity and self-perception were inseparably linked with the land, and the concentration of settlement in the 'rural' region of the Eastern Settlement and the outer coast seal hunting may not have been incompatible after all. Seals kept people alive, and as long as the landowners were able to maintain their rights to all natural resources, keep people on the land and maintain the perception of Norse Greenland as a society based on farming and landownership, sealing would support social order. We have no indications of social systems disintegrating before the abandonment; but there may be signs of stress beginning in the later settlement period. The impressive stone churches and stone halls are from the later settlement period. Such prestigious building activities could be seen as a sign of wealth and stability, but, as suggested by Niels Lynnerup (2011), it might also have been an irrational attempt by the elite to create common symbols to keep a declining society together. The reduced differences in diet in the later settlement period (mentioned above) might also indicate that a declining terrestrial economy now also hit the elite.

The development introduced hazards to society. The elite farmers with their larger and more diverse economic capacity were no longer able to act as buffers in climatic bad years (Dugmore et al 2012), and the increased dependence on outer coast resources meant longer distances between settlement and hunting grounds, demanding manpower that was scarce. An increase in storms due to the climate changes may also have cost precious lives and boats (McGovern 2012, 299). A few lost young lives – and the offspring they never had – could have been and perhaps also were catastrophic for the declining Norse population (Lynnerup 1998, 115ff; 2011).

Within their own setting the Norse Greenlanders were adaptive, and in general they managed the natural resources well and developed a highly integrated and effective economy based on both the terrestrial and the marine resources. Still, besides the demographic aspects and local interactions, the complex Norse Greenland socio-environmental system also included interregional interactions, and the cultural limits to adaptation may have come from the hazards imbedded in society from the very beginning. Norse society in Greenland would only survive on the condition of maintained contacts

with the Scandinavian homelands. Norse Greenland was never self-sufficient, for instance the vital iron for tools had to be imported. Pastures and hunting game were prerequisites in South Greenland, as was access to attractive trade items. In the Viking Age and early Middle Ages walrus tusk was a high-status item on the North European markets, worth travelling far to get. The valuable walrus tusk may have been the prime pull-factor for immigration to Greenland (Arneborg 1998), and control over this trade was an important factor for the maintenance of the socioeconomic structure of society; consequently, when the European market changed and the value of the tusk declined (Roesdahl 2005), and navigation over the North Atlantic became increasingly dangerous due to more ice and storms, this must have been fatal to the Norse societies in Greenland.

The Thule Inuit appearance in the settlements was yet another stress factor for the Norse. The Thule Inuit have long ago been cleared of having wiped out the Norse (Arneborg 1993; 1997). Still, with the recognition of the increased Norse dependence on the outer coast resources at the same time as the Inuit might have reached the settlements, the contacts between the Norse and the Inuit are worth reconsidering. A few Inuit raids, like that recorded in the Icelandic Annals (1379) when ‘the skraelings [the Inuit] attacked the Greenlanders, killed 18 men and caught and enslaved two boys’ (GHM III:33; author’s translation from Danish), could have been fatal for the settlements, again seen in the light of the decreasing number of inhabitants.

## Conclusion

One of the main topics in Norse Greenland research has always been the mysterious depopulation of the Norse settlements in the mid-fifteenth century. For the last 40 years unsustainable farming practices and a rigid economic and social system have been in focus. The latest research results, however, indicate that the Norse Greenlanders adapted well to their new environment and created a flexible subsistence system that responded effectively to the major environmental challenges that they faced. As the terrestrial resources failed they increased the use of marine resources.

Focussing on governance, dietary economy and settlement pattern, it appears evident that cultural hazards were embedded in the socio-economic system from the initial settlement. Norse Greenland was never self-sufficient. Influence in society originated in the ownership of land, the rights to the nat-

ural resources, and the control over and the ability to maintain contacts with the Scandinavian homelands. In Greenland climate changes and subsequent decrease in terrestrial subsistence economy threatened the position of the elite farmers, although seal hunting stabilized the system, at least for a period. More difficult was the loss of contacts with Europe – and thus imports of vital supplies.

Ultimately, the Norse Greenlanders fell victim to both major environmental and global economic changes, and the most obvious answer to the declining years would have been to emigrate. From the middle of the fourteenth century both Iceland and Norway had suffered greatly from several diseases that had diminished the population substantially and left farms deserted (eg Orrman 1997). New inhabitants would have been welcomed.

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